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International Society for Influenza and other Respiratory Virus Diseases

acute respiratory virus backgrounder

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Influenza and other acute viral infections of man present a major and continuing burden of morbidity and mortality in individuals of all age groups. Annually, influenza epidemics are responsible for at least 500,000 deaths globally. The very young and the elderly are particularly at risk. The impact of a potential future influenza pandemic is unpredictable but such an event could cause millions of deaths and profound social disruption. Respiratory syncytial virus and parainfluenza viruses, among others, are also important respiratory pathogens particularly in the young and the elderly. Overall, the burden of viral respiratory disease in terms of hospitalisations, consultations in primary care, and time off work and school is very considerable. Worldwide, the use of antibiotics to treat bacterial complications of viral infection is enormous and bacterial resistance to antibiotics is of increasing public health concern. In many developing countries of the world, very limited information is available about the impact of viral respiratory disease and further study is urgently needed.

A recent event—the sudden appearance in 2002 of a new and highly virulent virus infection, SARS, caused by a coronavirus—had profound social and economic consequences. The epidemic infected some 8,000 persons with a 10% fatality rate, largely in the elderly. No specific antiviral therapy or preventive measure, other than containment and contact tracing was available. This epidemic, which could potentially recur, draws attention to the importance of improving our understanding of respiratory virus diseases and their prevention and treatment. The impact of SARS on national economies and international travel was enormous and great alarm was generated in public health authorities, governments, and the public. SARS has reinforced the need for enhanced surveillance, improved diagnosis, antiviral drug and vaccine development, and clinical research. **isirv** will provide a forum for the exchange of information on SARS and coronaviruses and advocate for research and development activity. It is of interest to note that the existence of a long-established influenza network provided an invaluable international resource in dealing with the emergence of SARS.

The past few years have also seen the development of remarkable epidemiological events and an unprecedented level of concern regarding the risk of new influenza pandemics. In 1997, and more recently in 2004, massive outbreaks of highly virulent avian influenza, mainly associated with H5N1 virus, have occurred in poultry in some nine Asian countries. Transmission from poultry to man has occurred: 52 cases of serious respiratory disease with some 50% mortality have been reported, largely in persons with contact with infected poultry. A major outbreak of H7N1 influenza occurred in poultry in The Netherlands in 2003: 89 human infections with one death were reported. Fortunately H5N1 and H7N7 viruses appear to lack the capacity for efficient human-to-human transmission. These events have indicated the urgent need for public health measures to be put in place in preparedness for a possible future pandemic. They also clearly

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emphasize the need for increased surveillance and vigilance for influenza in humans and animals, increased levels of scientific research and development relevant to understanding the biological, genetic, and immunological properties of the influenza virus and on vaccine and drug development. Also an enhanced level of international cooperation and awareness is required.

A wide range of different aspects of acute viral respiratory disease is the subject of laboratory and clinical research in academia, in clinical settings, and in the pharmaceutical and biotechnology industry. This effort includes diagnostics, epidemiology, virology, and microbiology, and the development and evaluation of novel prophylactic and therapeutic measures. In the case of influenza, vaccines and antiviral drugs are currently available and in routine use, and several novel products remain under development. On a global scale, influenza vaccines are probably underutilized and there is an important need for increased awareness of the benefits of vaccination. There are still important needs for research and development towards more effective and available means of prevention and treatment. For other respiratory viruses, vaccines and specific antiviral drugs are not yet licensed and available, and there is an urgent need for intensified research in this field. In particular, there is a need for a safe and effective vaccine against respiratory syncytial virus.

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